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Old world-new world differentiation of so-called "circumtropical" taxa: The case of rare genus grimaldina richard, 1892 (Branchiopoda: Cladocera: Macrothricidae)

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Abstract

© 2017 Magnolia Press. The Cladocera (Crustacea: Branchiopoda) is an ancient group of predominantly freshwater microscopic invertebrates. During the last three decades a cosmopolitanism paradigm in the biogeography of these animals is gradually being replaced by a concept of continental endemism. Current morphological and molecular genetic data demonstrate that many Holarctic taxa actually represent sibling species groups with localized distributions. Similarly, some circumtropical cladocerans are poorly studied and must be considered using the same concept. Grimaldina Richard, 1892 (Cladocera: Macrothricidae) is an example of such taxon. Since the first description time, this genus was considered as monotypic, including a single species Grimaldina brazzai Richard, 1892, distributed in tropical regions all around the World, but being rare everywhere across its distribution range. We carefully examined specimens of Grimaldina from different tropical water bodies, redescribed morphology of G. brazzai based on new material from Africa, supplemented the genus diagnosis, and demonstrated that G. brazzai is limited to the Old World (Africa and Asia). Population from New World tropical regions are described as Grimaldina freyi sp. nov., based on material from the collection of Prof. Dr David G. Frey and named in his honor. It clearly differs from G. brazzai in: (1) antenna II with longest endopod seta bearing more densely set spinulae and (2) limb V medial portion with a smaller ratio of seta 2 to seta 3. These traits in G. freyi sp. nov. are presumably plesiomorphic, while G. brazzai has more apomorphies. Divergence between American (G. freyi sp. nov.) and Old World (G. brazzai) populations could be related to the ancient vicariant events (Gondwana breakup) or to more recent trans-continental dispersal events.

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Keywords

Anomopoda, Continental endemism, Morphology, New species, Taxonomy, Tropical regions

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